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10/830,068	04/23/2004	Young Joon Ahn	YHK-0135	7680

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EXAMINER	
GUHARAY, KARABI	
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2879	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/830,068	AHN, YOUNG JOON	
	Examiner	Art Unit	
	Karabi Guharay	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment, filed on 8/27/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,7-9,11-13,26-32,34-36 and 39-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,7-9,11-13,26-32,34-36 and 39-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

Amendment, filed on 8/27/07 has been considered and entered.

Amendment of Abstract is acknowledged.

Claim 32 is amended.

Claims 33 & 37 are canceled.

Specification

The disclosure is objected to because of the following informalities: Specification paragraph 0084 should be amended since Fig 12D is not present.

Paragraph 0085 recites "sealing layer 350 is formed on the upper substrate where the upper dielectric layer 312 has been formed ".

However, Figs 12B-C shows the opposite.

Appropriate corrections are required.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter of claim 28, having two buffer layer and two sealing layers and the arrangement as claimed in claim 28 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 7-9, 26-28, 30-31, 39-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (US 2002/0036466).

Regarding claims 1 & 40, Tanaka et al. disclose a plasma display panel (Fig 2), comprising: a first substrate (11); electrodes (12) are formed on the first substrate; a second substrate (21) facing the first substrate with a discharge space there between; a

sealing layer (24) located between the first substrate and the second substrate; at least one of a buffer layer or a dielectric layer (13) formed between the first substrate and the sealing layer (paragraph 0057), wherein the at least one of the buffer layer or the dielectric layer has the following composition: PbO at a ratio of 45% to 55%, B203 at a ratio of 10% to 20% and SiO2 at a ratio of 15%-25%; (see Table 1B, example no. 15 paragraph 0260) and a protective film (14) formed on the at least one of the buffer layer or the dielectric layer.

Regarding claim 3, Tanaka et al. disclose that the buffer layer has a thermal expansion coefficient different from a thermal expansion coefficient of the first substrate (see Table 2 & Table 3).

Regarding claim 5, Tanaka et al. disclose that the buffer layer has a thermal expansion coefficient different from a thermal coefficient of the sealing later (partition layer is made of alumina different from the composition of buffer layer (paragraph 0237: see Table 3).

Regarding claim 7, Tanaka et al. disclose that the first substrate has a thermal expansion coefficient of approximately $80x10^{-7}$~$95\ x10^{-7}$/°C (Table 2 of page 13).

Regarding claim 8, Tanaka et al. disclose that the sealing layer (partition wall) a thermal expansion coefficient of approximately $65x\ 10^{-7}$~ $80\ x\ 10^{-7}$/°C (see Table 3, example 26).

Regarding claim 9, Tanaka teaches all the limitation of claim 9, including the composition of the buffer or dielectric layer (see rejection of claim 1) but is silent about

the thermal expansion coefficient (CTE) of that composition (see in table 1B, example 15, thermal expansion coefficient is not mentioned). However, CTE is the intrinsic property of a material or composition. Since Tanaka et al. disclose the same composition of the dielectric or buffer layer as claimed, it has intrinsically the same CTE range as claimed since material and its properties are inseparable.

Regarding claims 26 & 41, Tanaka et al. disclose a plasma display panel (see Fig 1), comprising: a first substrate (101); electrodes (102) are formed on the first substrate; a second substrate (105) arranged with respect to the first substrate such that a discharge space is provided there between; a sealing layer(108) between the first substrate and the second substrate; and at least one of a buffer layer or a dielectric layer (103)formed between the first substrate and the sealing layer, wherein the at least one of the buffer layer or the dielectric layer has a thermal expansion coefficient of approximately $72x10^{-7}/°c$ to thermal expansion coefficient (paragraphs 9-11 & 21).

Regarding claim 27, Tanaka et al. disclose the plasma display, wherein the sealing layer extends in a longitudinal direction from a first end (upper end) to a second end (lower end), the first end located proximal to the first substrate and the second end located proximal to the second substrate, the buffer layer provided only in the area between the first end of the sealing layer and the first substrate (see Fig 1).

Regarding claim 28, Tanaka et al. disclose another sealing layer (partition wall at the other end of device opposite to the one end, Fig 1) between the first substrate and the second substrate; and another buffer layer (end part of the buffer layer between

another end partition wall 24 and the substrate) provided only under in another area between the first substrate and the another sealing layer, being intermediate between first substrate and another sealing layer another buffer layer will compensate thermal stress between first substrate and the sealing layer.

Regarding claim 30, Tanaka et al. disclose that the thermal expansion coefficient of the buffer layer is different from the thermal expansion coefficient of the first substrate (first substrate is made of soda lime glass which has thermal expansion coefficient which is different from buffer layer 103, see paragraph 0021 and table 2 of page 13).

Regarding claim 31, Tanaka et al. disclose that the thermal expansion coefficient of the buffer layer (103) is different from the thermal expansion coefficient of the sealing layer (partition wall; see paragraph 0023).

Regarding claim 39, Tanaka et al. disclose that the dielectric layer has the following composition: PbO at a ratio of 45% to 55%, B203 at a ratio of 10% to 20% and SiO2 at a ratio of 15% to 25% (see Table 1B, example no. 15 paragraph 0260).

Claims 32, 36 & 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebihara et al. (US 6514111).

Regarding claims 32 and 42, Ebihara discloses in Fig1, a plasma display comprising: a first substrate (2); a second substrate (7) arranged with respect to the first substrate (22) such that a discharge space is provided there between; a sealing layer (

12) between the first substrate (2) and the second substrate (7); at least one of a buffer layer (4) or a dielectric layer provided on the first substrate (2) and provided between the first substrate (2) and the sealing layer (12); wherein the buffer layer (4a) has a has a thickness of 35 Micron to 39 micron (in this case 35 microns) between the sealing layer and the first substrate (lines 19-22 of column 6) and a protective layer (6) on the dielectric layer and further comprising plurality of electrodes (3) on the first substrate .

Regarding to claim 36, Ebihara discloses that the at least one of the buffer layer (24) or the dielectric layer is the buffer layer (24a), and the dielectric layer (25) is formed on the buffer layer (24) such that the buffer layer (24) is provided between the first substrate (22) and the dielectric layer (25) and such that the dielectric layer (25) is provided between the buffer layer (24) and the protective film (26, see Fig 2B).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-13 & 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al., as applied to claim 26 above, and further in view of Ebihara et al. (US 6514111).

Regarding claim 11-13, Tanaka et al. disclose all the limitations of claims 11-13 except for buffer layer together with a dielectric layer such that the buffer layer is provided between the first substrate and the dielectric layer and such that the dielectric layer is provided between the buffer layer and the protective layer wherein the buffer layer is formed to be extended from the dielectric layer and buffer layer is formed of a different material from that of dielectric layer.

However, Ebihara, in the same filed of Plasma display panel, discloses in Figures 2A-C, the dielectric layer (25) and the buffer layer (24) such that the buffer layer (24a) is provided between the first substrate (22) and the dielectric layer (25) and such that the dielectric layer (25) is provided between the buffer layer (24a) and the protective film (26) and the buffer layer (24) extends from the dielectric (see region 24a) and buffer layer 24 is formed from a different material than the dielectric layer 25 (see materials having different softening points; lines 41-65 of column 6), such arrangement of dielectric layer having greater thickness in the discharge region while lower thickness in the sealing area, reduces the stress in the dielectric layer of the sealing region thereby occurrences of flaws is avoided with out reducing the thickness of the dielectric layer in the discharge region which is needed for ac plasma (lines 39-44 of Col.3).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a dielectric layer on the buffer layer as taught by Ebihara et al. in the device of Tanaka, since this will reduce the stress in the dielectric layer of the sealing region thereby occurrence of flaws is avoided without reducing the thickness of the dielectric layer in the discharge region which is needed for ac plasma.

Regarding claim 29, Tanaka et al. discloses all the limitations of claim 29 except for another upper dielectric layer formed on the substrate between the buffer layer and the another buffer layer.

However, Ebihara et al. discloses a plasma display panel comprising an upper dielectric layer (25) formed on the first substrate between the buffer layer (24a) and the another buffer layer (opposite side 24a); and a protective film formed on the upper dielectric layer (25, see Fig 2C) for the purpose of increasing the thickness of the dielectric layer in the discharge region which is needed for AC plasma display to avoid dielectric breakdown, while having thinner dielectric layer in the sealing region.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add another upper dielectric layer (25) as taught by Ebihara to increase the thickness of the dielectric layer in the discharge region to avoid dielectric breakdown during AC plasma discharge.

Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. as applied to claim 32 above, and further in view of Tanaka et al. (US 2002/0036466).

Regarding claims 34-35, Ebihara et al. disclose all the limitations of claims 34-35 except for composition of the buffer or dielectric layer being PbO at a ratio of 45% to 55%, B203 at a ratio of 10% to 20% and SiO2 at a ratio of 15% to 25%. and CTE of the composition is greater or equal to $72x\ 10^{-7}/°C$.

However, Tanaka et al. in the same field of plasma display panel teaches a dielectric layer having the same composition (see table 1B, example 15, paragraph 0260), though not mentioned, since composition of the dielectric layer is same as claimed composition it would intrinsically have same CTE, since CTE is the intrinsic property of a material/composition.

Further Tanaka teaches that use of such dielectric materials in the plasma display produce less cracks in the dielectric layer (see paragraph 0030).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the dielectric material as disclosed by Tanaka et al. in the device of Ebihara, since such dielectric layer would provide less cracks.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on 571-272-2457. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KGuharay

Karabi Guharay
Primary Examiner
Art Unit 2879
11/2/07